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CONTENTS:

Chapman—Two new species of <i>Trichodectes</i> (Mallophaga).....	185	King— <i>Termes flavipes</i> , etc.....	193
Aaron—The bee moth.....	187	Editorial.....	197
Westcott—The distribution of some N. American Syrphidæ.....	190	Economic Entomology.....	198
Youngs—Oviposition of <i>Anthophilax attenuatus</i>	192 †	Notes and News.....	200
		Entomological Literature.....	202
		Doings of Societies.....	206

TWO NEW SPECIES OF TRICHODECTES (MALLOPHAGA).

By BERTHA CHAPMAN, Stanford University, California.

Trichodectes is one of the two genera of Mallophaga found on mammals. *Gyropus*, the other of these has been found only on the guinea-pig. The species of *Trichodectes*, however, of which about thirty are known, are found on various hosts. Of these thirty species sixteen have been recorded from American hosts. The type specimens of these two species are in the collections of Stanford University.

***Trichodectes quadraticeps* n. sp. (Fig. 1).**

Several specimens taken from a fox, *Urocyon virginianus* (Palo Alto, Cala.).

Description of Female.—Body length 1.1 mm., width .61 mm.; broad, pale golden brown, with dark bands and spots on head and thorax, and paler transverse bands on the abdomen.

Head length .35 mm., width .44 mm.; broad, temples little wider than forehead; front with a distinct concavity; sides of front evenly and broadly rounding, with three short hairs each side of the median concavity, one short hair in front of the trabeculæ, which are large; antennæ short, with three segments of about equal length, a few scattered hairs; eyes large, with a fine hair; temples slightly rounding, several spines and hairs on the margin; occipital margin nearly straight; general color golden brown,

antennal bands of darker brown, anterior ends bending in at the clypeal concavity ending in broad, even blotches, the posterior ends also darker in front of the antennæ; dark ocular blotches; mandibles dark brown, showing through the head; an even dark band on the occipital margin and occipital bands distinct posteriorly.

Prothorax narrow, lateral margin rounding, with one pustulated hair near the lateral margin; dark golden brown lateral blotches widely separated anteriorly by a paler median space; these dark blotches are interrupted laterally by a distinctly paler circular spot; metathorax narrow, sides convex and strongly divergent; seven strong hairs on the first third of the posterior margin, which is obtusely angulated each side of the median line and its median portion is angularly concave upon the abdomen; general color paler than the prothorax, a darker lateral blotch which is interrupted by a pale space in which the hairs are placed; legs weak, with no distinct markings, a few scattered hairs.

Abdomen broad, tapering posteriorly but little; angles of the segments not prominent, with a single short hair; few dorsal hairs, but these are more numerous near the lateral half of the segment; last segment long, with a narrow posterior emargination, each side of which are two strong hairs; general color pale golden brown, slightly darker medially; transverse blotches of the ventral surface showing through the dorsal surface of segments two to seven; the appendages of segment eight are distinctly darker brown on their tips.

Male.—Body length .93 mm., width .55 mm.; head length .28 mm., width .38 mm. Abdomen more nearly oval than in female; last segment not more than half as wide as the preceding segment, posterior margin nearly straight, with acute lateral angles; genitalia slender, distinctly showing through the body; in general coloring and markings closely resembling the female.

***Trichodectes californicus* n. sp. (Fig. 2).**

One female taken from a pocket mouse, *Perognathus* sp., Baja California. Resembling, in general, *T. retusus* Witzsche, from a weasel, and *T. geomydis* Osborn from a pocket gopher, and *T. nephilidis* Osborn from a polecat.

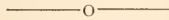
Description of female.—Body length 1.37 mm., width .84 mm.; short, broad, pale yellowish white, without definite markings, except on the front of head.

Head length .33 mm., width .5 mm.; anterior margin with a deep incision; sides of the front receding rapidly to the sharply angulated trabeculæ; four or five short hairs on the anterior margin and a group of short hairs in front of the indistinct suture; antennæ long and large, reaching beyond the temporal margin when extending back; the segments of about equal length, some scattering hairs; eye prominent, with a faint hair; temples rounding with six or seven marginal hairs and spines; occipital margin nearly straight and without hairs or spines; general color

pale golden brown; antennal bands darker brown, narrow, marginal, bending inward anteriorly, ending in distinct spots each side of the clypeal incision, a circular pale spot in front of the mandibles, which are dark brown, a dark ocular blotch; occipital blotches pale brown, yet distinct.

Prothorax long and wide; sides slightly rounding; posterior margin medially convex; a strong pustulated hair in the rounding posterior angle and two short, fine hairs near the median line; pale golden brown, slightly darker in the posterior angle; metathorax short, sides nearly straight, an interrupted transverse series of fourteen long hairs arranged in groups, two near the anterior lateral angle, three nearer the median line, and two others each side of the median line; there are also two short hairs near the posterior margin each side of the median line; general color pale golden brown, with no distinct lateral blotches; legs stout, pale, with darker semi-annulations and scattered hairs.

Abdomen broadly oval, reaching its greatest width at the third segment, then tapering rapidly to the last segment; a transverse series of strong hairs on each segment from one to six, being more numerous and spine like near the lateral margin; first two segments with short spines on the lateral margin; last segment narrowly emarginate with four strong hairs each side of the emargination and four strong dorsal hairs near the lateral anterior margin; ground color paler brown than the head on thorax; first three segments with slightly darker lateral bands.



THE BEE MOTH.

By Mrs. C. B. AARON, Phila., Pa.

In all warm countries where the honey-bee is found we may also expect its natural enemy, the bee-moth. When the early English colonists in the seventeenth century brought to America the "White man's fly" as the Indians called the bee, with it came the deadly pest whose ravenous appetite had suggested to Swammerdam the appropriate name of "Bee-wolf."

Beyond a certain altitude this troublesome moth is not to be seen. De Rauschenfels was unable to find it in the mountains of Prussia 2900 feet above the sea, although for years he watched hives both with and without bees. In bleak and cold localities where the summers are short and the hives exposed to the winds, the moth is rarely seen. In the tropics there exist the most favorable conditions for the moth's comfort. According to Haneman the bees in Brazil have a hard struggle, and Mr. Benton asserts that bee culture in certain regions in India is difficult on account of the moth.